



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/696,526	10/23/2000	Ji Su	160398-1	4894

7590

07/10/2002

ROBIN W. EDWARDS
NASA LANGLEY RESEARCH CENTER
MAIL STOP 212
3 LANGLEY BOULEVARD
HAMPTON, VA 23681-2199

EXAMINER

MEDLEY, PETER M

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 07/10/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/696,526

Applicant(s)

SU ET AL.

Examiner

Peter M Medley

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-15, 17 and 20-36 is/are rejected.
- 7) ☒ Claim(s) 10, 16, 18 and 19 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 October 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4, 5. 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the non-uniform thickness dependence the width and on the width and length must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 5-9, 11-14, 17, 20-23, 25-27, and 30-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Schafft.

With respect to claims 1 and 21-22, the reference discloses in **fig. 3** an electroactive device comprising two layers of material with layer **42** of non-uniform thickness. The reference discloses the use of a conductive epoxy.

With respect to claim 2, 3, and 14, the reference discloses electrical signal **54**.

With respect to claim 5, it is an inherent property of electroactive devices that the amplitude controls the range of motion.

With respect to claims 6-8, the non-uniform thickness layer inherently has these properties.

With respect to claims 9 and 17, **fig. 3** discloses that the non-uniform thickness is function of length.

With respect to claim 11, the reference discloses two electroactive layers in **fig. 3**.

With respect to claims 12 and 13, the reference discloses the use of a conductive epoxy.

With respect to claim 20, no structural limitations are added in this claim.

With respect to claims 23, 25-27, and 30-33, the reference discloses that the electroactive device is used for loudspeaker as disclosed in **fig. 4**.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4, 15, 24, 28, 29, and 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schafft in view of Pelrine.

With respect to claim 4, the reference discloses in **fig. 3** an electroactive device comprising two layers of material with layer **42** of non-uniform thickness. The reference inherently discloses means for bonding.

The reference does not disclose polymer electrodes.

Pelrine et al disclose polymer electrodes in the last full paragraph on page 240 for the purpose of providing compliant electrical connections.

It would have been obvious to one of ordinary skill in the art to use the polymer electrodes of Pelrine et al in the device of Schafft for the purpose of providing compliant electrical connections.

With respect to claim 15, the reference does what type of material is being used.

The Examiner takes Official Notice that polymers, ceramics, and composites would have been well known. The court has found that the selection of a known material based on its suitability for its intended use is obvious. *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960). *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). It would have been obvious to one of ordinary skill in the art to use polymers, ceramics, and composites for the purpose of utilizing their well documented properties.

With respect to claims 24, 28, and 29, the reference only discloses the device for use in a speaker.

The Examiner takes Official Notice that reflectors and display panels would have been well known. The reference does indicate that the non-uniform thickness makes the electroactive device stronger. It would have been obvious to one of ordinary skill in the art to use the device of Schafft in a reflector or a display panel for purpose of providing an actuator with increased strength.

With respect to claims 34 and 35, the reference does not disclose the same scale.

The reference does indicate that the non-uniform thickness makes the electroactive device stronger. In *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), the Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. It would have been obvious to one of ordinary skill in the art to scale down the device of **fig. 3** of Schafft for the purpose of providing micro and nano-scale device with improved strength.

Allowable Subject Matter

6. Claims 10, 16, 18, and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

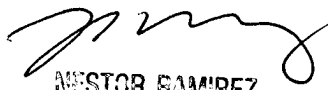
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter M Medley whose telephone number is 703-305-0494. The examiner can normally be reached on Monday-Friday 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 703-308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3432 for regular communications and 703-305-3432 for After Final communications.

Art Unit: 2834

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

PM
July 8, 2002


NESTOR RAMIREZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800